

Work Order ID 60528

Tuesday, July 13, 2010 11:29:12 AM



Page 1

Item ID: D212-664-101TRN

Accept



Setup Start



Revision ID:

Item Name: Crosstube Turning Detail

Stop



Start Date: 7/13/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/26/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: H

Date: 10-7-13

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool # Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D212-664-141

Rev D

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA113
2-Turn first side as per Folio FA113
3-File down transition lines smooth.

Q.M 10 -07-27 (1)

110

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

Q.M 10 -07-27 (2)

120

MORI SEIKI CNC LATHE LARGE

0.00



Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA113
2-File down transition lines smooth.
3-Remove sand and plugs

Q.M 10 -07-27 (3)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Page 2

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Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Turning Detail

Start Date: 7/13/2010 Start Qty: 1.00



Required Date: 7/26/2010 Req'd Qty: 1.00



Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 QC Quality Control	QC1- Inspect dimensions to dimension sheet Memo	0.00 0.00							
140 QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00							
150 HandFXtube Hand Finishing Crosstubes	Crosstubes Chemical Conversion Memo	0.00 0.00							

QA 10 - 07 - 27 ①

①

QA 10 - 07 - 28 ①

W/O:		WORK ORDER CHANGES						
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Page 3

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Accept

Revision ID:

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Start Date: 7/13/2010 Start Qty: 1.00

Required Date: 7/26/2010 Req'd Qty: 1.00

Reference:

Cust Item ID:

Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

(IX) X MB 10-07-28

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and Stock in kanban rack
Location: *X-tube cel*

(IX) X MB 10-07-28

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/07/29 X

10-7-28
①

W/O:		WORK ORDER CHANGES						
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Picklist Print

Tuesday, July 13, 2010 11:29:15 AM

Page 1

Work Order ID: 60528

Parent Item: D212-664-101TRN

Parent Item Name: Crosstube Turning Detail

Start Date: 7/13/2010

Required Date: 7/26/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec
IPP Rev B 08.04.02 removed Polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	----------------	--------------	---------------	----------------	--------

D6005-128

Manufactured No

120

Each

12.0000

1

1



Crosstube Material



0.7

10-07-270

Location

Loc Qty

Loc Code

LG

12

53593

12

1

W/O:		WORK ORDER CHANGES						
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NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 60528
Description: Crosstube Assembly (205/212/412 High Fwd)		Part Number: D212-664-141
Inspection Dwg: D212-664-141 Rev: D		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	0.200	/		Caliper and AM-CH
	R0.063	+/-0.010	R0.063	/		R-4
	2.740	+0.005/-0.000	2.740	/		Caliper
	5.097	+/-0.030	5.097	/		
	2.304	+0.005/-0.000	2.309	/		
	2.340	+0.005/-0.000	2.345	/		
	2.398	+0.005/-0.000	2.403	/		
	2.448	+0.005/-0.000	2.453	/		
	2.498	+0.005/-0.000	2.503	/		
	2.549	+0.005/-0.000	2.554	/		
	2.599	+0.005/-0.000	2.604	/		
	2.671	+0.005/-0.000	2.676	/		
	2.701	+0.005/-0.000	2.706	/		
SIDE B	0.200	+/-0.010	0.200	/		Caliper and AM-CH
	R0.063	+/-0.010	R0.063	/		R-4
	2.740	+0.005/-0.000	2.740	/		Caliper
	5.097	+/-0.030	5.097	/		
	2.304	+0.005/-0.000	2.309	/		
	2.340	+0.005/-0.000	2.345	/		
	2.398	+0.005/-0.000	2.403	/		
	2.448	+0.005/-0.000	2.453	/		
	2.498	+0.005/-0.000	2.503	/		
	2.549	+0.005/-0.000	2.554	/		
	2.599	+0.005/-0.000	2.604	/		
	2.671	+0.005/-0.000	2.676	/		
	2.701	+0.005/-0.000	2.706	/		
	126.514	+/-0.020	126.500	/		Tape measure G.M-01

Measured by: Q.M.	Audited by: S	Prototype Approval:	N/A
Date: 10.07.27	Date: 10/12/28	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	
B	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	
C	07.05.28	Dwg Rev updated	KJ/JLM	
D	10.02.02	Dimension 126.514 was 126.51	KJ	M

W/O:			WORK ORDER CHANGES					
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Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF
USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP/COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. *660522*
PL 10-7-23

RELEASED
2009-10-29
NY

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & B8-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKID TUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	PH		
DRAWN	RF		
CHECKED	PH		
MFG. APPR.	PH		
APPROVED	PH		
DE APPR.	PH		
DATE	09.09.30		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D212-664-141	REV. D SHEET 1 OF 4
TITLE XTUBE ASSY (205/212/412 HI FWD)	SCALE NTS
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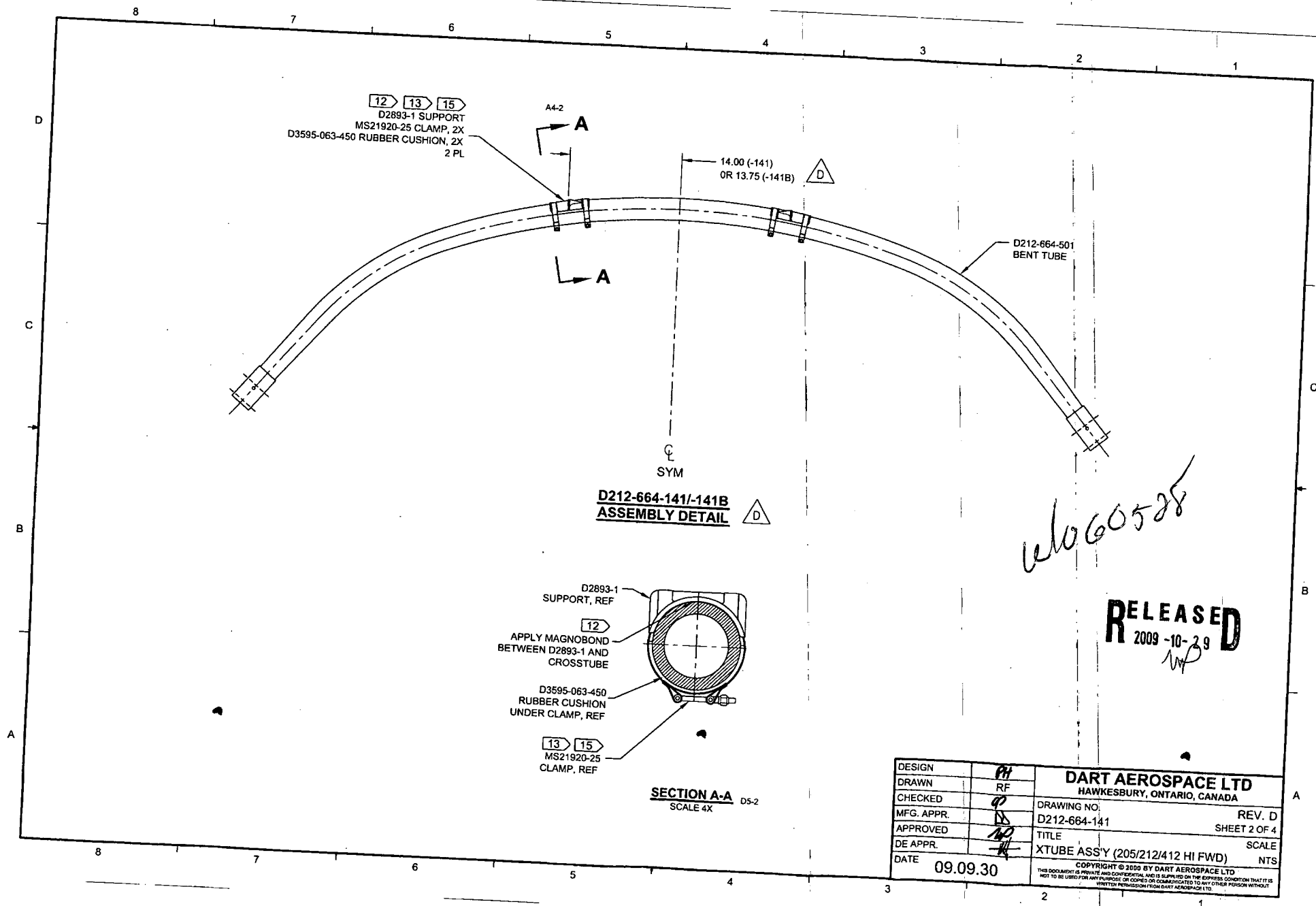
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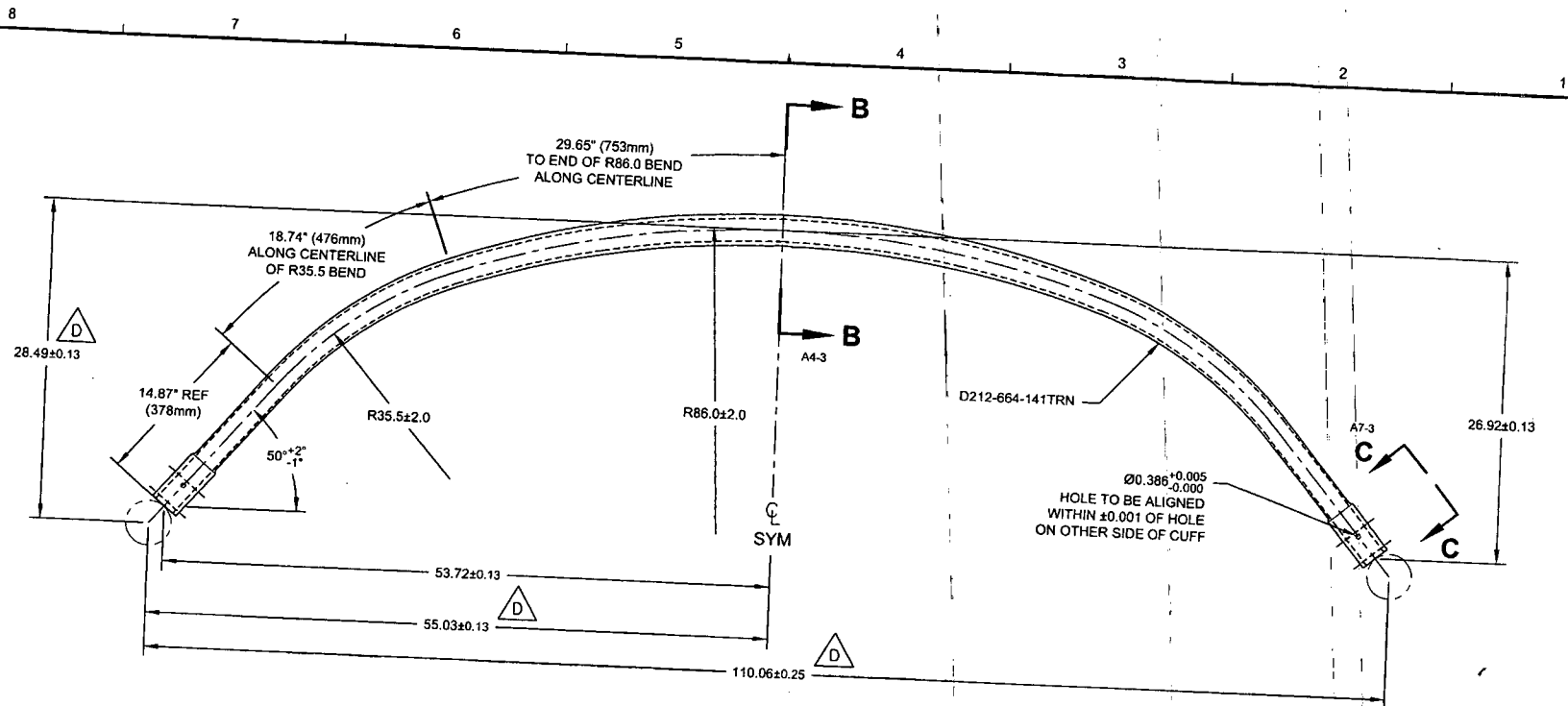
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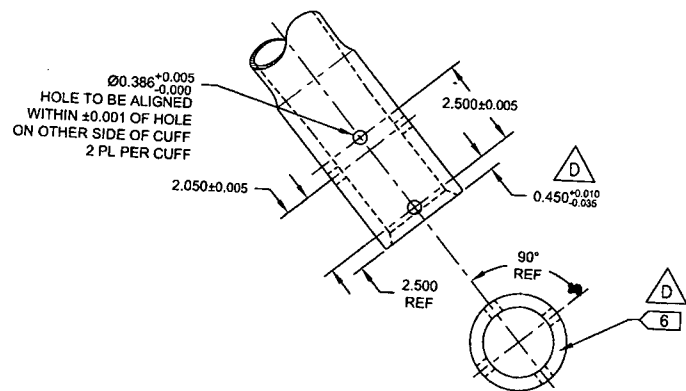
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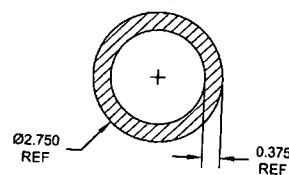
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D212-664-501
BENDING AND DRILLING DETAIL



VIEW C-C: CUFF DETAIL
SCALE 3X



SECTION B-B
SCALE 4X

RELEASED
2009-10-29

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	Q	DRAWING NO.	REV. D
MFG. APPR.	IS	D212-664-141	SHEET 3 OF 4
APPROVED	NO	TITLE	SCALE
DE APPR.	—	XTUBE ASSY (205/212/412 HI FWD)	NTS
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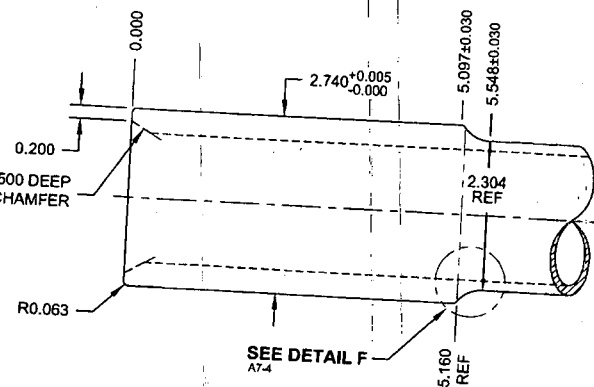
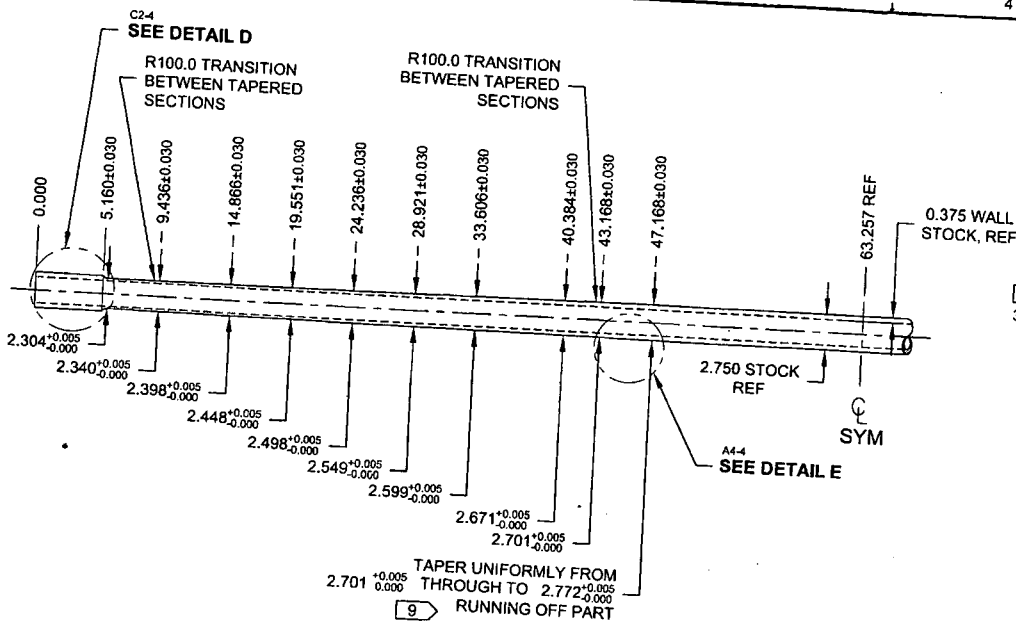
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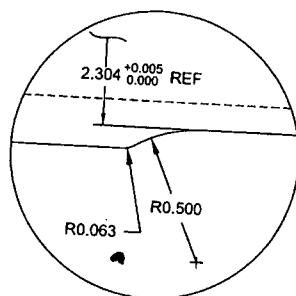
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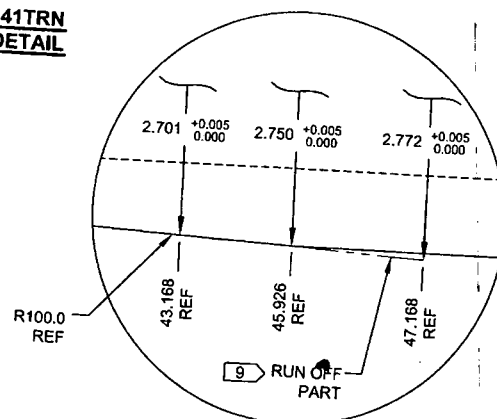


DETAIL D:
CROSSTUBE CUFF
SCALE 5X

D212-664-141TRN
TURNING DETAIL



DETAIL F:
CUFF TRANSITION
SCALE 10X



DETAIL E:
TAPER RUN-OFF
NOT TO SCALE

RELEASED
2009-10-29

DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	REV. D	
DRAWN	RF			
CHECKED	92		DRAWING NO.	
MFG. APPR.	15		D212-664-141	SHEET 4 OF 4
APPROVED	10		TITLE	SCALE
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